

Discard survival experiments on the Basque purse seine fleet.

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Summary

The landing obligation stated in the article 15 of the EU regulation No 1380/2013 in the Common Fisheries Policy considers some exemptions to the general rule, being one of these exemptions the one that refers to the high survival rates of the discard. According to this exemption some experiments were carried out in the Basque purse seine fleet in regular commercial fishing conditions. The objective of the experiments was to assess the survival rate of the discard in this fishery. The purse seine gear due to its technical characteristics and way of use is one of the most successful techniques when it comes to the survival of discarded fish. The tested species were mackerel (*Scomber scombrus*), horse mackerel (*Trachurus trachurus*), anchovy (*Engraulis encrasicolus*), sardine (*Sardina pilchardus*) and Spanish mackerel (*Scomber japonicus*). Results obtained show promising survival rates in some fishing condition. However, the high number of factors affecting survival makes it difficult to achieve statistical signification.

Introduction

Regulation (EU) No 1380/2013 of the European Parliament and of the Council of 11 December 2013 on the Common Fisheries Policy includes as one of its objectives the gradual reduction of discards, this is presented in Article 15 "Landing obligation". In summary, this article says that all catches of species which are subject to catch limits shall be brought and retained on board the fishing vessels, recorded, landed and counted against the quotas. In this article, a gradual implementation time-frame for the different fisheries is included. According to mentioned time-frame, from 1 January 2015 at the latest, it should be implemented in small pelagic fisheries (i.e. fisheries for mackerel, herring, horse mackerel, blue whiting, boarfish, anchovy, argentine, sardine and sprat). The Article also prohibits the discard of a greater number of species in successive years.

From species listed, mackerel, horse mackerel, anchovy, and sardine, deserve a special attention due to they are target species for purse seiners of European southern waters. Furthermore, the first three species, i.e. mackerel, horse mackerel, and anchovy, are subject to quota (catch limit set for a particular fishery). Prior to the implementation of the new regulation, discard of individuals was common, as it is required by regulation, once quota was reached. From 1 January 2015 onwards, and under the new European fisheries regulation ("Landing Obligation"), all catches of species, which are subject to catch limit, shall be landed and counted against the quotas. This can be a major problem once the quota of one of the species is finished; in the worst scene the vessel should stop fishing activity.

Nevertheless some exceptions to the general landing obligation rule are envisaged in regulation. One of them is the one referred to species for which scientific evidence demonstrates high survival rates, taking into account the characteristics of the gear, of the fishing practices and of the ecosystem. Thus, this study was prepared to assess the survival rate of discard in the Basque purse seine fleet.

Methods

A commercial purse seine vessel was hired to do the survival tests. Researchers embarked in 20 sea cruises from November 2012 to November 2013, only 10 of these cruises resulted suitable to do survival tests. The reason for that was the need of having a satisfactory set during the first two days of

the week to enable the scheduled duration of captivity experiment. The vessel was equipped with tanks to keep fish alive, a fish pump, and an automatic grading machine. During the experiments, fish were put on board using the fish pump, and next an automatic grading machine was used for the quick selection of the catch. With these two pieces of equipment, the fish are handled much more quickly than in traditional maneuver where snoods are used. Afterwards the fish were introduced in tanks on board simulating the discard to the sea. Duration of the fish within tanks was restricted to some extent by the activity of the vessel and ranged from 2-5 days.

Results and discussion

In all tests, except cruise nº3 with mackerel as target species, survival rates above 50% were obtained, in most cases exceeding 80% (in 29 out of 34 tests), which may be considered as “high survival rate”. While observed survival rates in our experiment are quite high, these vary in relation to the species as well as the crowding time and crowding density, both strongly related with the total catch. These two factors have been identified as the more relevant factors affecting fish survival after purse seining.

Several studies have assessed fish survival rates after slipping (release fish before the net is fully taken on board), in purse seine gear (Huse and Vold 2010, Tenningen *et al.* 2012, Marçalo *et al.* 2008, 2010, and 2013). In general, the survival rates of the tests conducted for this study are similar, in the lower range, to those obtained for herring (98.4-48.0%) by Tenningen *et al.* (2012), and for sardine (97-30%) by Marçalo *et al.* (2013). Nevertheless, they differ from those obtained by Huse and Vold (2010) for mackerel (16.5-0.8%). Probably the differences lay on the lower crowding densities of our study, as a result of the lower single catches per set.

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